

Remarks

I. Status of the claims

Claims 1, 2, 8, 14-16, 21-27 are pending. Claims 1 and 15 have been amended to recite a preferred arrangement of lasers. Support for this amendment may be found in Figures 3 and 4, paragraphs 13, 14, 23, and 24, and throughout the specification. Figures 3 and 4 depict arrays containing a plurality of lasers arranged in a two-dimensional configuration of at least three rows that are diagonally staggered in a parallelogram pattern. No new matter has been introduced through these amendments.

II. Rejection under 35 U.S.C. § 102(b) as anticipated by Sun

The examiner has rejected claims 1, 8, 15, and 21-25 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 6,091,537 to Sun et al. (“Sun”).

According to the examiner, Sun discloses a micro-optic light emitting array comprising a plurality of vertical cavity surface-emitting lasers, wherein each vertical cavity surface-emitting laser emits a laser beam focused with a micro-optic element, and wherein the plurality of vertical cavity surface-emitting lasers are arranged in a two-dimensional configuration of rows and columns that are staggered along the process direction. The examiner cites col. 1, lines 44-56 and col. 5, lines 7-10 to support this analysis.

While Sun discloses that the microlens array can be staggered two-dimensionally, Sun does not disclose arranging the microlens and lasers in a two-dimensional configuration of at least three rows that are diagonally staggered in a parallelogram pattern, as claimed by Applicants. In Sun, Figures 4 and 5 both depict a one-dimensional configuration of the lasers.

In contrast, Applicants claim a configuration where at least three rows of lasers are diagonally staggered in a parallelogram pattern. See Figures 3 and 4 for an example of this arrangement. This configuration provides the arrays and printing systems utilizing the arrangement with maximal depth of focus without having gaps in the recorded image. See

Specification, p. 7, lines 15-16 and p. 8, lines 4-5. Sun does not teach an array or a printing system having lasers arranged in this manner.

Accordingly, because Sun does not teach the claimed invention, Applicants respectfully request that the examiner withdraw this § 102(b) rejection as anticipated by Sun.

III. Rejection under 35 U.S.C. § 102(e) as anticipated by Beier

The examiner has rejected claims 1 and 8 under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 7,002,613 to Beier et al. (“Beier”).

According to the examiner, Beier discloses a printing system comprising a printing laser printbar imager that includes a plurality of micro-optic light emitting array having a plurality of vertical cavity surface-emitting lasers, wherein each vertical cavity surface-emitting laser emits a laser beam focused with a micro-optic element, and wherein the plurality of vertical cavity surface-emitting lasers are arranged in a two-dimensional configuration of rows and columns that are staggered along the process direction. Applicants respectfully traverse this rejection.

Beier discloses a method for printing an image on a printing substrate that includes a powerful energy source and a device for inputting energy to a printing-ink carrier. See col. 3, lines 38-42. An energy input is produced on the printing-ink carrier by a number of image spots of an array of individually controllable VCSEL light sources. See col. 3, lines 52-55. In one embodiment, the VCSEL bars of the device for inputting energy are staggered in at least two substantially parallel rows. See col. 6, lines 59-61.

While Beier discloses that the VCSEL bars may be staggered in two substantially parallel rows, Beier does not teach an array containing a plurality of lasers that are arranged in a two-dimensional configuration of at least three rows that are diagonally staggered in a parallelogram pattern. In Figure 8, Beier discloses an array 84 of subarrays, the subarrays being or including VCSEL bars 86. However, as can be seen from Figure 8, the VCSEL bars are not arranged so that at least three rows are diagonally staggered in a parallelogram pattern. Only two rows are depicted, with no suggestion that a third row would be useful or could improve the depth of focus without having gaps in the recorded image. Nor does Beier disclose that the lasers should

be diagonally staggered in a parallelogram. Instead, Beier prefers that the VCSEL bars are arranged on intersection points of a regular Cartesian, two-dimensional grid. See claim 2.

Accordingly, Beier fails to teach the claimed invention, and Applicants respectfully request that the examiner withdraw the § 102(e) rejection as anticipated by Beier.

IV. Rejections under 35 U.S.C. § 103(a)

The examiner has made the following rejections under 35 U.S.C. § 103(a): claim 2 is rejected as being unpatentable over Sun; claim 14 is rejected as being unpatentable over Sun in view of U.S. Published Patent Application No. 2004/0120376 to Kwak (“Kwak”); claims 1, 15-16, and 22-24 are rejected as being unpatentable over U.S. Patent No. 6,121,983 to Fork et al. (“Fork”) in view of Sun; and claim 27 is rejected as being unpatentable over Fork in view of Sun, and further in view of Kwak.

As discussed above, Sun does not teach or suggest arrays containing a plurality of lasers arranged in a two-dimensional configuration of at least three rows that are diagonally staggered in a parallelogram pattern, as claimed by Applicants. Kwak and Fork also fail to teach or suggest this claim element or otherwise remedy the deficiencies of Sun. Accordingly, Sun, Kwak, and Fork, taken individually or combined, fail to teach or suggest Applicants’ claimed invention. Applicants therefore respectfully request that the examiner withdraw the rejections under § 103(a).

V. Conclusion

Applicants respectfully request reconsideration of this application in view of the above amendments and remarks.

Except for issue fees payable under 37 C.F.R. §1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§1.16 and 1.17 which may be required,

including any required extension of time fees, or credit any overpayment to Deposit Account No. 19-2380. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. §1.136(a)(3).

Respectfully submitted,

NIXON PEABODY LLP

/Jeffrey N. Townes, Reg. No. 47,142/
Jeffrey N. Townes
Reg. No. 47,142

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Customer No. 22204
NIXON PEABODY LLP
401 9th St., N.W.
Suite 900
Washington, D.C. 20004
202.585.8000